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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,359	04/02/2001	Samuel L. Thomasson	10205.029	9367

7590 12/28/2005  
Paul F. Wille  
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EXAMINER

SINGH, RAMNANDAN P

ART UNIT PAPER NUMBER

2646

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/824,359

Applicant(s)

THOMASSON ET AL.

Examiner

Ramnandan Singh

Art Unit

2646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed on Nov. 14, 2005 have been fully considered but they are not persuasive.

(i) Applicant's argument—"This jumping around (Ku et al) is a piecemeal selection of components as needed for the rejection. Obviously, there is no basis other than claim 1 for selection of components" line page 2, lines 5-7.

Examiner's response---Examiner respectfully disagrees. Ku et al [US 6,424,925 B1] state: "a tone detector (45) that includes at least one circuit (hereafter "single phase reference matcher") that not only performs a convolution of an input signal with a reference signal, but also compares the result of convolution with a threshold to determine if there is a match, and if so drives a signal active indicating that tone is present in the input signal...." [col. 2, lines 43-67; Fig. 5A; col. 9, line 66 to col. 10, line 8]. Obviously, the Ku's tone detector is the basis for selection of components for the rejection, not "claim 1".

(ii) Applicant's argument-----"There is no second counter with a first threshold or a second threshold disclosed or suggested" on page 2, lines 9-12.

Examiner's response--- Applicant is respectfully directed to the rejection of claim 1 as set forth in the Office action, on page 3, wherein accumulator 37A counts the number of logic ones from the exclusive-NOR gate (46X) functioning as a first counter [Ku et al; Fig. 5A; col. 7, lines 18-25]; and incrementing a second (two-way) counter (i.e.

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an up-down counter) when the count is above a first threshold (i.e. upper threshold,  $T_u$ ), and decrementing the second counter when the count is below second threshold (i.e. lower threshold,  $T_l$ ) [Ku et al; Fig. 5A; col. 8, lines 8-42; col. 7, line 44 to col. 8, lines 7]. As such, Examiner asserts that accumulator 37A, as shown in Fig. 5A of Ku et al, embodies the functions of both the first counter and the second counter as claimed by the applicant.

(iii) Applicant's argument---“Independent claim 3 was regarded as “essentially similar” to claim 1. The quoted term has no clear meaning. Further, this characterization has no basis in patent law is not properly part of an examination. Each claim is supposed to be treated on its own merits. No do so is error” on page 3, lines 1-4.

Examiner's response---Applicant is producing only a part of the rejection of claim 3 for his argument. The complete rejection of claim 3 as set forth in the Office action is reproduced below:

“Claim 3 is essentially similar to claim 1 except for delaying (i.e. phase shifting) the digital signal to produce a delayed digital signal. Ku et al further teach the method for delaying ( $D_t$ ) the digital signal to produce a delayed digital signal [Fig. 2E; col. 6, line 45 to col. 7, line 10; col. 9, lines 24-40; col. 12, lines 30-49]”.

This rejection clearly brings out the differences between the limitations of claim 1 and that of claim 3 for examination. Examiner has applied the prior art as shown to reject these limitations. Hence this rejection is proper.

(iv) Applicant's argument---“Unlike claim 1, claim 3 includes the defined term “shadow”; a delay of 50 milliseconds or less. There is no disclosure or suggestion of this recitation in the Ku et al patent. There is no mention of this recitation in the Examiner's analysis.

Examiner's response--- The applicant's argument is not directed to the claim. Claim 3 recites the limitations, “ A method for detecting a shadow in a digital signal, said method comprising the steps of: delaying the digital signal to produce a delayed signal; applying the digital signal and the delayed signal to an exclusive-NOR gate; counting the number of logic ones from the exclusive-NOR gate in a first counter; incrementing a second counter when the count is above a first threshold; decrementing the second counter when the count is below a second threshold; and periodically resetting the first counter”. Clearly claim 3 does not recite the limitation “a delay of 50 milliseconds or less”.

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ku et al [US 6,424,925 B1].

Regarding claim 1, Ku et al teach a method for correlating two signals, the method comprising the steps of:

digitizing the signals if they are not already in digital form [Figs. 2A, 2B; col. 4, lines 2-12];

applying the signals to an exclusive-NOR gate (19A) [Figs. 1E, 1F; col. 2, lines 5-15];

counting the number of logic ones from the exclusive-NOR gate in a first counter (i.e. accumulator 37A) [Figs. 3A, 5A; col. 7, lines 11-32];

incrementing a second counter (i.e. U/D counter) when the count is above a first threshold (i.e. upper threshold,  $T_u$ ) [Fig. 3B; col. 7, line 44 to col. 8, line 7]; and

periodically resetting the first counter [Fig. 3A; col. 9, lines 28-29].

Although Ku et al teach the implementation of the second counter in the example using a one-way counter (such as an Up Counter) instead of two-way counter (such as an Up-Down counter (U/D counter)) to implement accumulator 37A, they also teach how the second counter using a two-way counter instead of the above one-way counter can be implemented applying bits  $-1$  and  $+1$ . As a result, " $-1$  bit" of the U/D counter will result in decrementing the second counter when the count is below a second threshold (i.e. lower threshold  $T_1$ ) [Figs. 1F, 3A, 3B; col. 8, lines 8-42].

Claim 3 is essentially similar to claim 1 except for delaying (i.e. phase shifting) the digital signal to produce a delayed digital signal. Ku et al further teach the method

for delaying (Dt) the digital signal to produce a delayed digital signal [Fig. 2E; col. 6, line 45 to col. 7, line 10; col. 9, lines 24-40; col. 12, lines 30-49].

Regarding claim 2, Ku et al further teach the method comprising the step of:  
producing a signal indicative of correlation (i.e. detecting a tone) when the count in the second counter (U/D counter) exceeds a third threshold (18) [Fig. 1E; col. 1, line 62 to col. 2, line 15].

Regarding claim 4, Ku et al further teach the method, wherein the delaying step is preceded by the step of:

digitizing an audio signal to produce the digital signal [Fig. 2E; col. 7, lines 33-43; col. 11, lines 37-54].

Regarding claim 5, Ku et al further teach the method, wherein said digitizing step is preceded by the step of:

filtering the audio signal in a band pass filter (23) [Fig. 2A; col. 4, lines 2-12; col. 5, lines 6-19; col. 9, lines 1-13].

Claim 6 is essentially similar to claim 1 except for three comparators. Ku et al teach an U/D counter having a first comparator (not shown) for using an upper threshold (Tu), a second comparator (not shown) for using a lower threshold (Tl) [Figs. 1F, 3B]; and further teach an indication of correlation when the count in the U/D counter

exceeds a third threshold using a third comparator (18) [Fig. 1E; col. 1, line 62 to col. 2, line 15].

Regarding claim 7, Ku et al further teach the telephone comprising: a band pass filter (23) having an output coupled to the input of the delay line [Fig. 2A].

### ***Conclusion***

**4. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**5.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh  
Examiner  
Art Unit 2646



**SINH TRAN**  
**SUPERVISORY PATENT EXAMINER**